

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A multichannel photocoupler comprising:
at one or more input sides: one or more time division means for subjecting one or more input signals at one or more respective channels to time division; and
a light-emitting element communicating at least one of the time-divided signal or signals to one or more output sides;
at one or more output sides: a light-receiving element receiving at least one of the time-divided signal or signals from the light-emitting element; and
one or more output signal separation means for decoding at least one of the time-divided signal or signals and for outputting same to at least one of the respective channel or channels,
said multichannel photocoupler further comprising:

one or more synchronization means for, in the event that one or more signals at at least one of the respective channel or channels is transferred from one or more input sides to one or more output sides, synchronizing the signal or signals through use of one or more prescribed clock signals; and

as one or more means for transferring one or more clock synchronization signals from one or more input sides to one or more output sides: transfer of one or more clock synchronization signals simultaneous with one or more signals at at least one of the respective channel or channels through use of the light-receiving element and the light-emitting element transferring one or more signals,

wherein a signal is generated through superposition of a clock signal of high signal level simultaneous with signals of the respective channels, this signal being communicated from said light-emitting element to said light-receiving element.;

~~the multichannel photocoupler further including one or more synchronization means for synchronizing the one or more input sides and one or more output sides through use of one or more prescribed clock signals transmitted simultaneously with and superimposed on at least one of the time-divided signal or signals; and~~

~~one or more distinguishing means for distinguishing one or more clock signals from one~~

~~or more time divided signals comprising, for at least one of the input side or sides, means for varying one or more electric currents flowing at the light emitting element so as to impart one or more differences to one or more optical intensities in one or more clock synchronization signals and one or more time divided signals.~~

Claim 2 (Canceled).

3. (Currently Amended) A multichannel photocoupler according to claim 1 wherein:
at least one of the synchronization means at at least one of the input side or sides, in the event that one or more input signals at at least one of the respective channel or channels is subjected to time division through use of one or more prescribed clocks, generates one or more start bits before one or more ~~time divided signals~~ at one or more first channels; and

at least one of the synchronization means at at least one of the output side or sides possesses functionality for detecting at least one of the start bit or bits.

4. (Currently Amended) A multichannel photocoupler according to claim 1 comprising, as one or more means for transferring one or more clock synchronization signals from one or more input sides to one or more output sides ~~wherein said synchronization means comprises:~~

at at least one of the input side or sides: a clock-signal-transfer light-emitting element other than the light-emitting element for transfer of one or more signals; and

at at least one of the output side or sides: a clock-signal-transfer light-receiving element other than the light-receiving element for transfer of one or more signals.

Claims 5 and 6 (Canceled).

7. (Original) A multichannel photocoupler comprising:
at one or more input sides: a light-emitting element transferring one or more signals to at least one of the output side or sides; and
one or more level coupling means for carrying out level coupling with respect to one or

more input signals at at least one of the respective channel or channels so as to impart one or more changes in one or more optical intensities at the light-emitting element and for causing same to be transferred to at least one of the output side or sides;

at one or more output sides: a light-receiving element receiving one or more signals imparted with one or more changes in one or more optical intensities produced by the light-emitting element; and

one or more output signal separation means for decoding at least one of the signal or signals and for outputting same to at least one of the respective channel or channels.

8. (Original) A multichannel photocoupler according to claim 7 further comprising: one or more monitor light-receiving elements provided at at least one of the input side or sides;

wherein one or more changes over time in one or more optical intensities at the light-emitting element is fed back to at least one of the level coupling means.

9. (Previously Presented) A multichannel photocoupler according to any of claims 1, 3, 4, 7 or 8 wherein:

one or more output stages at at least one of the respective channel or channels comprises one or more transistor elements.

10. (Previously Presented) A multichannel photocoupler according to any of claims 1, 3, 4, 7 or 8 wherein:

one or more output stages at at least one of the respective channel or channels comprises one or more thyristor elements.

11. (Previously Presented) A multichannel photocoupler according to any of claims 1, 3, 4, 7 or 8 wherein:

one or more output stages at at least one of the respective channel or channels comprises one or more triac elements.

12. (Currently amended) A multichannel photocoupler comprising:
an input circuit for receiving at least one electrical input signal;
a time division circuit for time dividing said at least one electrical input signal to produce a time divided signal;
an output ~~side circuit~~ comprising a first light-receiving element ~~and a second light-receiving element~~;
~~a clock circuit for generating a clock signal~~;
a first light-emitting element communicating said time-divided signal from said an input side to said ~~first light-receiving element on said an~~ output side at a first light intensity;
~~a second light-emitting element communicating said clock signal from said input side to said second light-receiving element on said output side at a second light intensity different than said first light intensity, said clock signal being superimposed on said at least one time-divided signal; and~~
an output signal separation circuit for decoding said time-divided signal and outputting the decoded time divided signal as an electrical output signal; and
a clock circuit for generating a clock signal,
wherein:
said input circuit comprises a clock signal transmitter comprising a second light-emitting element,
said output circuit comprises a clock signal receiver comprising a second light-receiving element; and
a signal from said first light-emitting element and a signal from said second light-emitting element are superimposed.

Claim 13 (Canceled).

14. (Currently amended) A multichannel photocoupler according to claim 12 ~~wherein~~ said input circuit comprises a clock signal transmitting circuit and said output circuit comprises a clock signal receiving circuit, ~~and~~ wherein said clock signal transmitting circuit transmits a start

bit and said clock signal receiving circuit is adapted to detect said start bit.

Claims 15-17 (Canceled).

18. (Previously Presented) A multichannel photocoupler comprising:

an input circuit for receiving at least one electrical input signal and including a first light-emitting element;

an output circuit comprising a first light-receiving element receiving a signal from said first light-emitting element;

a level coupling circuit for level coupling said at least one electrical input signal and changing an optical intensity at the light-emitting element; and

an output signal separation circuit for decoding and outputting said signal.

19. (New) A multichannel photocoupler according to claim 12 wherein said clock signal transmitter comprises said first light-emitting element and wherein said clock signal receiver comprises said first light-receiving element.